

of bears were found mingled with sand and large water-worn pebbles of the rocks already mentioned.

One of the most interesting observations which occurred to the author during his investigation was, that the stratified earthy materials filling the cave were *not deposited horizontally, but had an evident dip*, which he remarked was in the same direction and apparent inclination as that of the limestone rock itself. The important inference he drew from this is, that the stratified materials were deposited in the cave before the limestone received its present position; and he conjectured, that the animals whose remains are here preserved may have existed even before the last great disturbances of our carboniferous system of rocks. Should similar phenomena be observed in other caves, it would perhaps carry back the existence of mammiferous animals to geological epochs more ancient than generally supposed; and account for the occurrence of diluvial materials in similar situations, without the startling supposition of extensive degradations of solid rocks, by causes apparently inadequate to produce them. Another cave exists in the same neighbourhood, in which bones have also been found. It is near the village of Pont Newydd. In its bottom was found a collection of hyæna bones, in a mass of calc-sinter and gravel, four feet in thickness.

The author illustrated his paper by a view of the cliffs of Cefn, and by a plan and sections of the principal cave.

PROCEEDINGS OF THE ROYAL ACADEMY OF BERLIN.*

Feb. 23, 1837.—M. von Buch read a paper on the Jura in Germany.

The German Jura in Swabia and Franconia is an uninterrupted continuation of the Swiss Jura. Its external form is that of a glacis of a fortification, with a gentle descent towards the exterior, and a steep fall towards the interior. Opposite to it stands the similar range of the French Jura, on the right side of the Sâone upwards, and on the left sides of the Meurthe and Moselle downwards. The steep declivities of these elevated ranges are turned towards each other, and the space, which they for the most part surround, is in the northern parts almost completely inclosed by older grauwacke mountains. The interior of this immense bason contains the greatest portion of Burgundy and Lorraine, the whole of Alsace, Swabia, Franconia, and Hessa, and includes no mountains of the Jura formation. For this reason M. von Buch considers the chains to have been originally produced in their present form, with their canal-like valleys,

* Translated from the Bericht über die Verhandlungen der königl. Akademie der Wissenschaften zu Berlin.

which traverse four or five times the whole breadth of the chain, and with their deep inlets and sections. This being exactly the form and structure of the great coral reef which surrounds New Holland, we may be inclined to ascribe to both a similar mode of origin. The chalk formation draws itself close up from the exterior so as to surround the Jura ranges, but in the interior of the encompassed country there is not a trace of it to be found. From this we have evidence of the mural elevation of the Jura existing previous to the deposition of the chalk.

The Jura range is divided by nature into three parts: 1. The Swiss Jura, in which the layers are always much inclined, and form long extended ridges and chains; 2. The Swabian Jura, in which the layers lie regularly and horizontally upon one another, and form a large plateau little undulated and extending over many miles; 3. The Franconian Jura, in which the middle is occupied by extended masses of dolomite, which appear on the heights like obelisks, towers, or ruins of gothic castles. This appearance of dolomite begins almost exactly where the Jura changes its north-easterly for a northern direction. The dolomite is no new superadded mass; one series of strata would be deficient, were we to consider it a Jurassic stratum which had hitherto not occurred. Besides, it possesses no peculiar zoological character, and for this reason gives indications of its origin from the metamorphosis of limestone.

In height or section the Jura ranges may also be divided into three parts: 1, a black one, the layers of lias and shales; 2, a brown, the coarse brown sandstone; 3, a white one; fine-grained layers of limestone, coral, and shell banks. A description and catalogue of the characteristic fossils of each layer of these divisions gives a more clear and accurate idea of them and of their zoological character, than the long, and frequently inaccurate descriptions often given, in which the same thing is frequently repeated under different names.

The lias, which makes its appearance almost everywhere at the foot of the mountains, contains almost nothing, but such organic products as are peculiar to it alone, and these products in general are the same in all countries hitherto examined.

The middle part of the Jura is more varying. That which appears in the southern parts of England and in France in the form of oolite, is in Germany a coarse sandstone, with analogous shells in it; but in the north of England this sandstone contains a quantity of impressions of plants, and even coal, which are quite similar to those which we on the other hand find in the keuper, recollecting that in other organic products both formations have nothing in common with each other.

In the upper or coralline part of the Jura, the limestone containing *Diceras* and *Nerineæ* has been followed, especially in 1836, as the exterior covering and last layer of the Jura formation, over the whole northern inclination of the Swabian Jura. This peculiar formation (Portland stone) is wanting in the Franconian Jura. It commences first below Hemmau, probably above the lithographic slates, forms the vale declivities of the Nab and of the Laber near Regensburg, the rocks of Abach and Kellheim near Altmühl, the hills of Neuburg and Ingolstadt, and raises itself near Ulm to the greatest heights of the range at Nattheim and Heidenheim. It continues over Möskirch, and probably joins immediately with those layers near Solothurn which have been so accurately examined by M. Hugi. *Diceras* and *Nerineæ* at Ingolstadt, as also the large *Pinna* (*Trichites*) *granulata*, (*Mytilus amplus*), which first occurs in abundance near Pillmansdorf, between Hemmau and the Laber, give to these layers a prominent character. Besides, a quantity of other shells occurring in it, as *Pholadomya donacina*, *Pterocera Oceani*, *Terebratula triloba*, *Isocardia ex-centrica*, &c., may be regarded as fossils characteristic of it. It is not quite clear whether the lithographic slate really dips under the *Diceras* limestone; perhaps they only occur together, without continuing one beneath the other; for the lithographic slates are proved by their *Pterodactylus*, *Libellulæ*, Algæ and Fish, to be a littoral formation; but the limestone with *Diceras* and *Nerineæ*, on the other hand, appear, by their gigantic shells, to be a pelagian formation.

MISCELLANEOUS.

FUNGI OF INDIA.

IN General Hardwicke's Drawings, now in the collection of the British Museum, there is a book containing figures of a considerable number of Indian *Fungi*. It is curious to observe, that with only one or two exceptions, such as the genus *Podaxon* of Fries, they all very much resemble the European species, and belong to European forms.—J. E. GRAY.

TRACHYPTERUS VOGMANUS.

PROF. REINWARDT, of Copenhagen, has recently published in the Transactions of the Danish Academy a detailed account of this curious and very rare fish, which has hitherto been so imperfectly known.

OTIS TARDA.

SHOT a few days since near Dereham, a fine specimen of that rare and nearly extinct bird, the Great Bustard, *Otis tarda* of Linnæus. It was a female bird, in excellent plumage, and is now in the possession of Mr. J. Knight, the bird preserver, of London Street, Norwich.